

AMENDMENTS TO THE CLAIMS

Please add claims 36-40 as follows:

18. (Previously Presented) A system comprising:

5 an integrated management agent capable of managing components of a storage area network (SAN), the integrated management agent comprising a device agent;

the device agent comprising an object-based device handler sublayer and a protocol-dependent device handler sublayer, the protocol-dependent
10 device handler sublayer comprising multiple modules, each respective module of the multiple modules adapted to support a respective device-type-specific protocol; and

wherein a particular module of the multiple modules that is adapted to support a particular device-type-specific protocol may be installed to or
15 uninstalled from the protocol-dependent device handler sublayer independently of other modules of the multiple modules while the integrated management agent is running.

19. (Previously Presented) The system of Claim 18, wherein the

20 integrated management agent further comprises an object manager that represents the components of the SAN as objects, and wherein the object-based device handler sublayer provides an interface between the object manager and the protocol-dependent device handler sublayer to permit an object level interface to the devices.

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20. (Previously Presented) The system of Claim 18, wherein the integrated management agent further comprises a dynamic list of device-type-specific protocols that it is capable of using, wherein each device-type-specific protocol is associated with a list of objects and methods, and
5 wherein a given list of objects and methods is added to the dynamic list when a given module of the multiple modules supporting a given device-type-specific protocol is installed to the protocol-dependent device handler sublayer.
- 10 21. (Previously Presented) The system of Claim 19, wherein the integrated management agent further comprises a consistent user interface module coupled to the object manager, wherein at least one device type-specific module is installed, and wherein the at least one device type-specific module further comprises a device handler for coupling a storage system to
15 the integrated management agent.
22. (Previously Presented) The system of claim 21, wherein at least one device type-specific module further comprises code for supporting a plurality of protocols to communicate with a plurality of devices.
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23. (Previously Presented) The system of claim 22, wherein the management system further comprises a distributed error and status handler capable of handling error and status information from at least one device.

24. (Previously Presented) The system of Claim 23, wherein at least a first level of the distributed error and status handler executes on the at least one device.

5 25. (Previously Presented) The system of Claim 24, wherein the at least one machine selected from the group comprising a host and an appliance incorporates a second level of error and status handler.

26. (Previously Presented) The system of Claim 24, wherein the
10 distributed error and status handler further comprises a centralized global error and status handler level.

27. (Previously Presented) The system of Claim 25, wherein the centralized global error and status handler level executes upon a fault
15 tolerant system in a storage area network management environment.

28. (Previously Presented) The system of Claim 18, wherein the integrated management agent further comprises a trap handler coupled to a notification module to receive traps from at least one SAN device and send
20 notification to at least one system administrator.

29. (Previously Presented) The system of Claim 28, wherein the integrated management agent is further capable of sending traps to support at least a second management system.

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30. (Previously Presented) The system of Claim 18, wherein the integrated management agent is capable of being configured with a configuration utility.

5 31. (Previously Presented) The system of Claim 18, wherein the object manager further comprises a dynamic list indicating device types the integrated management agent is capable of handling, wherein installing device type-specific modules causes addition of device types to the dynamic list, and wherein addition of device types to the dynamic list does not require
10 shutting down the integrated management agent.

32. (Previously Presented) The system of Claim 31, wherein the network interconnection system further comprises at least one fibre channel switch, and wherein a device type-specific module is type specific to the at
15 least one fibre channel switch.

33. (Previously Presented) The system of Claim 18, wherein the integrated management system further comprises a firmware download module with unified user interface hiding device specific firmware download
20 process and characteristics from the administrator.

34. (Previously Presented) The system of Claim 18, wherein the integrated management agent is capable of discovering devices and agents in the SAN and their interconnection by applying a conglomerate method comprising at least two elements selected from the group comprising host
5 and device agent broadcasting, multicasting device identity, collecting addresses from network traffic, collecting information from a name server, scanning a set of ranges of address supplied in configuration information, and collecting information about devices from configuration information.
- 10 35. (Previously Presented) The system of Claim 18, wherein the integrated management agent is further capable of discovering devices and agents in the SAN and their interconnection by applying a conglomerate method comprising at least three elements selected from the group
15 comprising host and device agent broadcasting, multicasting device identity, collecting addresses from network traffic, collecting information from a name server, scanning a set of ranges of address supplied in configuration information, and collecting information about devices from configuration information.

36. (New) A method of managing components of a storage network,
comprising:

discovering a device in the storage network;

retrieving management information about the device;

5 storing the management information and an identifier associated with
the device in a storage medium;

locating a management agent for the device; and

storing an association between the management agent and the
device in the storage medium.

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37. (New) The method of claim 36, wherein discovering a device in the
storage network comprises receiving information from a user interface.

38. (New) The method of claim 36, wherein discovering a device in the
15 storage network comprises receiving information transmitted from the
device.

39. (New) The method of claim 36, wherein discovering a device in the
storage network comprises querying the device.

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40. (New) The method of claim 36, further comprising updating a firmware
module on the device.